detect antibiotics such as quinolones, and others. Using *Bacillus stearothermophius,* a variety of antibiotics can be detected in about 60–120 minutes using color change or change in luminescence substrate.

Each test kit is fully packaged all in one device, including the reagents, which greatly simplifies the test, making it user-friendly. The test utilizes simple steps which are controlled by the plunger and indicator marks, and has puncturable seals, such as aluminum foil seals, that separate the various compartments. It eliminates the need to prepare reagents, and no pipettes or dispensers are needed. This device eliminates operational mistakes due to inaccurate pipettes. Since all the reagents, liquid and tablets, are individually packaged and sealed, under optimum conditions, the test kit has excellent shelf life stability, with an expectation of over two month's stability at room temperature. The test device can be easily carried and used in any place, for example, in a processing plant, without restrictions.

Thus, the test apparatus of the invention provides for a safe, convenient, lightweight and inexpensive test apparatus that may be stored for longer periods and easily transported for use. Further, the invention is easy, neat and convenient to use. The prepackaged single use sequential unit dose containment system allows for fewer user errors in preparing reagent chemicals for use. While the single use packaging system of the invention is shown and described herein for the testing of ATP for sanitation purposes, it is recognized that the apparatus, system and method may be used for a wide variety of product applications.

What is claimed is:

1. A unit dose reagent chamber for use in a test apparatus for the detection of adenosine triphosphate (ATP) or alkaline phosphatase (AP) in a test sample, and wherein a moveable probe is employed to obtain a test sample and to release reagents from the reagent chamber to a test unit, which unit dose chamber comprises:

a) a cylinder having a one open end and an other opposite open end;

b) a probe-puncturable membrane seal over the one end and the other end of the cylinder to form a sealed compartment; and

c) a reagent composition for use in the detection of the test sample and sealed within the sealed compartment, which composition consists essentially of and is selected from the group consisting of:

i) a detergent-containing buffered solution to release adenosine triphosphate (ATP) or alkaline phosphatase (AP) from the test sample into the solution for testing;

ii) a reaction stopping solution having a pH of 8 to 11; and

iii) a luciferin-luciferase or phosphatase substrate reagent tablet.

2. The chamber of claim **1** wherein the membrane seal comprises aluminum foil.

3. The chamber of claim **1** wherein the reagent composition comprises a phosphoric acid buffer and an anionic or non-ionic detergent.

4. The chamber of claim **1** wherein the reagent composition includes a pH indicator.

5. In combination, the chamber of claim **1** in a test apparatus for the detection of adenosine triphosphate (ATP) or alkaline phosphatase (AP) in a test sample, which test apparatus includes a luciferin-luciferase or phosphatase substrate reagent for reaction with the released adenosine triphosphate (ATP) or alkaline phosphatase (AP) in the solution.

6. The combination of claim **5** wherein the test apparatus includes a longitudinally moveable probe to puncture the membrane seals to carry out the test.

7. The combination of claim **5** wherein the test apparatus includes a closed bottom end, transparent test unit at the one end of the test apparatus, and wherein one or more unit dose reagent chambers are longitudinally positioned in the test unit.

8. The combination of claim **7** wherein the test unit has an open top end with threads and a closed bottom end, and the test unit is removedly, threadably secured to one end of the test apparatus.

9. The combination of claim **8** wherein the top end of the test unit is sealed with a probe-puncturable membrane seal.

10. The combination of claim **7** wherein the sealed compartment comprises the buffered-detergent solution and a luciferase and a luciferin reagent in tablet form at the bottom end of the test unit.

11. The combination of claim **5** wherein the test apparatus includes a threadable means to move the probe spirally and longitudinally to puncture the membrane seals.

12. The chamber of claim **1** wherein the reagent composition includes a biological buffer solution to optimize a reaction for the detection of adenosine triphosphate (ATP) or alkaline phosphatase (AP).

13. The chamber of claim **12** wherein the biological buffer comprises tris(hydroxymethyl)aminomethane (TRIS) or tricine.

14. A test apparatus for the detection of adenosine triphosphate (ATP) or alkaline phosphatase (AP) in a test sample, by luminescence or color, which test apparatus comprises:

a) a longitudinal test apparatus housing having a one end and an other end;

b) a moveable probe within the housing to collect a test sample and arranged to puncture a membrane seal;

c) a transparent test unit having a one end and a closed bottom end extending from the one end of the housing for use in detecting luminescence or color in the test sample, and a reagent tablet to detect adenosine triphosphate (ATP) or alkaline phosphatase (AP), by color or luminescence, at the closed bottom end; and

d) one or more unit dose reagent chambers longitudinally-positioned in the test unit, which reagent chamber comprises:

i) a cylinder having a one open end and an other opposite open end;

ii) a probe-puncturable membrane seal at and over the one end and the other end of the cylinder to form a sealed compartment; and

iii) a reagent composition for use in the detection of adenosine triphosphate (ATP) or alkaline phosphatase (AP) in the test sample and sealed within the sealed compartment, which reagent composition comprises a buffered solution to release adenosine triphosphate (ATP) or alkaline phosphatase (AP) from the test sample into the solution for subsequent reaction with the reagent tablet.

15. The apparatus of claim **14** wherein the membrane seal comprises aluminum foil.

16. The apparatus of claim **14** wherein the reagent composition comprises a phosphoric acid and a detergent solution.

17. The apparatus of claim **14** wherein the test unit has an open top end with threads and a closed bottom end and is removedly, threadably secured to one end of the test apparatus.

18. The apparatus of claim **14** wherein the one end of the test unit is sealed with a probe-puncturable membrane.

19. The apparatus of claim 14 wherein the sealed compartment comprises a buffer-detergent solution and a luciferase and a luciferin substrate, as a reagent tablet, is at the bottom end of the test unit.

20. The apparatus of claim 14 which includes two sequential reagent unit dose chambers comprising: a first chamber containing the reagent solution to release phosphatase from the probe; and a second chamber containing a reagent for the detection of the phosphatase in the test sample.

21. A transparent test unit for use in a test apparatus, for the detection of adenosine triphosphate (ATP) or alkaline phosphatase (AP), and which test unit comprises: a one open end; a closed bottom end; a probe-puncturable membrane over the one end; and the one end having threads for threadable attachment of the test unit to the test apparatus, and the test unit having one or more separate, longitudinally-aligned unit dose reagent chambers, which unit dose chamber comprises:

a) a cylinder having a one open end and an other opposite open end;

b) a probe-puncturable membrane seal over the one end and the other end of the cylinder to form a sealed compartment;

c) a reagent composition for use in the detection of adenosine triphosphate (ATP) or alkaline phosphatase (AP) in the test sample and sealed within the sealed compartment, which comprises a buffered solution to release adenosine triphosphate (ATP) or alkaline phosphatase (AP) from the test sample into the solution; and

d) a reagent tablet at the bottom end to detect the adenosine triphosphate (ATP) or alkaline phosphatase (AP) in the solution.

22. The test unit of claim 21 wherein the probe-puncturable membrane seal comprises aluminum foil.

23. The test unit of claim 21 wherein the test unit includes a luciferin-luciferase reagent tablet.

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